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Transmitted herewith for filing is the patent application of

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For: LABEL MAKER AND METHOD

Enclosed are:

XXX Specification (35 pps.) consisting of: Description (18 pps); Claims (16 pps); Abstract (1pp);

XXX 16 sheets of drawings;

XXX Declaration and Power of Attorney;

____ An assignment of the invention to: _____ including $40.00 recordation fee and Assignment Recordation Form Cover Sheet;

____ Information Disclosure Statement (with copies of patent);

____ Form - PTO-1449;

____ Verified Statement Claiming Small Entity Status; and

____ Priority of U.S. Patent Application Serial No. _____, filed on _____ is claimed under 35 U.S.C. §120.

XXX Priority of U.S. Provisional Patent Application Serial No. **60/157,277**, filed on **October 1, 1999** and Serial No. **60/178,036**, filed on **January 24, 2000** is claimed under 35 U.S.C. §119(e).

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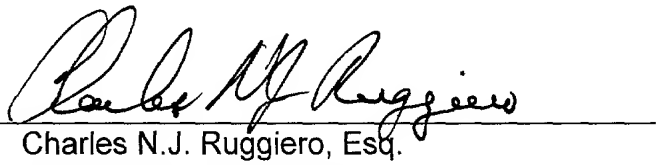

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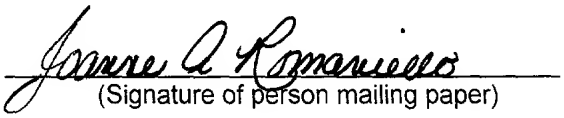

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LABEL MAKER AND METHOD

RELATED APPLICATIONS

This application claims the benefit of U.S. provisional application No. 60/157,277, filed on October 1, 1999 and of U.S. provisional application No. 60/178,036, filed on January 24, 2000.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a label maker and a method for making labels.

2. Description of the Prior Art

Label making apparatus has used computers to form labels for addresses as well as for labeling files and articles. For example, word processing programs generally include a label making utility that allows address information or other content to be printed on a selected label blank or on all label blanks of a label stock.

An example of a computer system that can make a series of labels with each label in the series being ordered in a numerical sequence is described in U.S. Patent No. 4,939,674. This computer system makes a series of labels, in which each label has a plurality of character positions. A number is assigned to some of the positions. The digits of the numbers are color coded so that a color assigned to

a specific digit is always that color in the series of labels. The numbers of the labels in the series are an ordered sequence that, for example, increments by one, two or another amount from label to label. A drawback of this computer system is that it is limited to producing a series of related labels and is not suitable for performing a job that requires different types of labels to be formed and printed. Another drawback is that the computer system does not provide a display of a label to the user before printing. A further drawback is that the computer system has limited capabilities for printing and color assignment.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a computer that can make a plurality of labels that have unrelated characteristics or attributes in a single job.

Another object of the present invention is to provide a computer that has a versatility to make a plurality of labels that have either related numbers, unrelated numbers or both in a single job.

A further object of the present invention is to provide a label making system with a label inventory managing capability.

A still further object of the present invention is to provide a method that achieves the foregoing objects.

The foregoing and other objects of the present invention are achieved by the method of the present

invention that forms a plurality of labels that each have a plurality of character positions. The method uses a computer that responds to entries of a user from an input device, such as a keyboard, a mouse or other device. In response to an entry of content, such as alphabetic or numeric characters, for one or more positions of a label, a label with alphanumeric content is defined. Succeeding entries define the alphanumeric content for the other labels such that at least one of the labels is unrelated in numerical sequence to any of the other labels in the job. The labels so formed are then printed.

Another aspect of the invention assigns an attribute scheme, for example, a foreground color, a background color, a font type, a font size, a font style, shape and/or other attributes to one or more of the character positions of the labels in a job in which the labels may or may not be related in numeric sequence. Still another aspect of the invention manipulates a machine readable code, such as a bar code, by either suppressing it, identifying its location relative to the character positions or rotating the elements of the code for a reading in either a first direction or a second opposed direction. Yet another aspect of the invention permits the characters to be suppressed so that only the bar code is printed.

A further aspect of the invention responds to user entries to establish print conditions with respect to a label stock that contains an array of label blanks. One of the print conditions is the starting label blank, which can be any blank on the label stock. Another print condition

is order of printing, either serial by row or serial by column.

Another aspect of the present invention is to save the data of an ordered sequence of labels of a current job so that the labels of a future job can continue in the same ordered sequence where the current job ended.

A further aspect of the present invention provides a label meter that keeps track of a label inventory and alerts a user when the inventory is low.

The computer of the present invention includes a label making program and/or a label meter program that cause the computer to perform the methods of the invention.

BRIEF DESCRIPTION OF THE DRAWING

Other and further objects, advantages and features of the present invention will be understood by reference to the following specification in conjunction with the accompanying drawings, in which like reference characters denote like elements of structure and:

FIG. 1 is a block diagram of a networked system that includes the label system of the present invention;

FIG. 2 is a block diagram of the label system of FIG. 1;

FIG. 3 depicts a label with a positional attribute scheme;

FIG. 4 depicts a label with a horizontal orientation;

FIG. 5 depicts a label with a suppressed bar code;

FIG. 6 is a display screen used for an ad hoc job by the label system of FIG. 1;

FIG. 7 is an expansion of the display screen of FIG. 6;

FIG. 8 is a display screen used for a serial job by the label system of FIG. 1;

FIG. 9 is a display screen used for a positional palette;

FIG. 10 is a display screen used for printing labels;

FIGS. 11 through 17 are flow diagrams of the label making program of the label system of FIGS. 1 and 2;

FIG. 18 is a label meter display screen for the label meter program of the label making system of FIGS. 1 and 2; and

FIG. 19 is a flow diagram of the label meter program of the label making system of FIGS. 1 and 2.

DESCRIPTION OF THE INVENTION

With reference to FIG. 1, there is provided a label system generally represented by numeral 30. Label system 30 communicates via a network 34 with a vendor computer 36. Vendor computer 36 may provide various services to label system 30. For example, vendor computer 36 may provide via an e-commerce procedure software sales, downloading, updating, announcements, label stock sales and the like. Network 34 may be the Internet, the World Wide Web, a telephone network, other networks or a combination thereof.

Label system 30 includes a computer 38, a computer bus 40, a keyboard 42, a mouse 44, a display 46, a bar code reader 48, a printer 50 and a communication module 52. Computer bus 40 interconnects computer 38 with keyboard 42, mouse 44, display 46, bar code reader 48, printer 50 and communication module 52. Communication module 52 sends and receives messages via network 34 to and from vendor computer 36 or other devices. Keyboard 44, mouse 44 and bar code reader 48 are input devices that can be used by a user to make entries to specify label jobs for label system 30. It will be apparent to those skilled in the art that other input devices can be used.

Referring to FIG. 2, computer 38 includes a processor 54 and a memory 56. Memory 56 has stored therein an operating system 58, utilities 60, a label program 300 and a label meter program 500. Operating system 58 controls processor 54 to perform various operations through the use of utilities 60. Thus, utilities 60 include print, display and other utilities. Label program 300 uses operating system 58 and utilities 60 to control label making system 30 to make and print labels based on entries made by a user

via keyboard 42, mouse 44, bar code reader 48 or other input devices. Label meter program 500 uses operating system 58 and utilities 60 to control label making system 30 to keep track of labels used, refill labels ordered, refill labels received so as to maintain an adequate label inventory and prevent execution of printing jobs when the inventory is inadequate.

Software, such as operating system 58, utilities 60, label program 300 and label meter program 500, can be installed to memory 56 from a memory medium 62. This software may be read from memory medium 62 by a memory device associated with computer 38 or by a memory device associated with another computer, such as vendor computer 36 and downloaded to computer 38 via network 34.

Referring to FIG. 3, a label 64 has a plurality of character positions 66, 68, 70, 72, 74 and 76 that have a vertical alignment, in which the characters are read vertically. A bar code 78 is located to the right of character positions 66, 68, 70, 72, 74 and 76. According to an aspect of the invention, a positional attribute scheme or palette is assigned to character positions 66, 68 and 70. Character positions 66, 68 and 70 each may have the same or different positional palettes. For all labels created with the positional palette, the assigned attributes of character positions 66, 68 and 70 will be the same independent of the value of any alphabetic or numeric character contained therein. Character positions 66, 68 and 70 may be, for example, a prefix. A label indicator 77, shown as "d", is located in character position 74.

Bar code 78 has a plurality of elements 79 that are arranged for reading in a particular direction, for example, from top to bottom. According to an aspect of this invention, the reading direction may be rotated by 180° for reading from bottom to top.

Referring to FIG. 4, a label 80 has a plurality of character positions 82 aligned horizontally, in which the characters are read from left to right. A bar code 84 is located below character positions 82.

Referring to FIG. 5, a label 86 includes a plurality of character positions 88. Label 86 has no bar code. According to an aspect of this invention, generation of a bar code can be suppressed. It will be apparent to those skilled in the art that bar codes 78 and 84 are by way of example, and that other machine readable codes may be used.

Referring to FIG. 6, a display screen 90 is presented on display 46 when a user selects an ad hoc job for creating labels. An ad hoc job includes a variety of different labels that may or may not be related. For instance, an ad hoc job may include replacement labels for an existing set of labels. Some of these labels will bear no ordered sequential relation to other labels in the job. However, the ad hoc job is versatile enough to include a group of labels that have an ordered sequence.

Display screen 90 includes various user entry areas. A job name 92 is for entry of a name for the job. A job attributes 94 is for entry of a positional palette 98 or a character palette 100. These palettes may be selected from

a repertoire of positional palettes or of character palettes. Alternatively, these palettes may be created from another menu (not shown) that permits selection of background and/or foreground color. A label template 96 is for entry of a label template. Label template 96 describes the label stock sheet along with attributes not controlled by the user that are unique to a particular label type. An example of such an attribute is the percentage of label height occupied by a bar code. A label indicator 102 is for entry of a label indicator and an indicator position 104 is for the location of the indicator. Label indicator 102 and indicator position 104 are used to place a special character or characters in the bar code portion of the label. These special characters are not visible.

A suppress bar code 106 is for suppression of the bar code and a suppress character 108 is for suppression of the characters. A bar code orientation 110 is for identifying the location of the bar code relative to the character positions, for example, to the right or left, above or below. A rotate bar code 112 is for reversal of bar code elements. A check character 114 is for addition of a check character to the bar code. An add button is for adding labels. Labels may be added by importing or by creating. Labels may be imported from an existing data file. These labels may be from a preexisting job or may be created by reading the bar codes of a set of labels with bar code reader 48.

Referring to FIG. 7, a display screen 120 is presented if the labels are to be created. Display screen 120 includes display screen 90 and a lower portion 122. Lower

portion 122 permits entry of the alphanumeric content of the labels of the job, one label at a time. To this end, a label attributes section 126 permits entry of the label content at 128 and changes in the positional palette at 134 or in the character palette at 136 that were previously selected via display screen 90. That is, the positional and character palettes selected via display screen 90 are used for all labels to be created, unless the user makes changes at 134 or 136. The alphanumeric content is entered via a character position 130 and a character ID or content 132, one character position at a time. An area 128 displays the entered content of the label. As each label is completed, actuation of an add button 138 lists it in a display area 124. When the ad hoc job is finished, an OK button 140 is actuated.

Referring to FIG. 8, if the user selects a serial job, a serial display screen 142 is presented. Serial display screen 142 includes a job name 144, a label template 146, a bar code orientation 154, a rotate bar code 155, a label indicator 156, an indicator position 158, a bar code suppress 178, a characters suppress 180, a positional palette 174 and a character palette 176. Each has the same functionality as the like named entry areas of ad hoc display screen 90 in FIGS. 6 and 7.

Serial display screen 142 also includes a number of labels 160 for entry of the number of labels in the serial sequence. A numerical sequence 162 includes an increment 164 and a decrement 166 to designate whether the sequence is ascending (increment) or descending (decrement) and an amount 168 to designate the amount of increment or

decrement. For example, if increment is selected and the amount is 2, the increment is by twos. A continue sequence after printing 192 permits the user to instruct label program 300 to save a notation that when additional labels of the same series are needed in the future, they will start with the next number of the ordered sequence. A pad character 172 must be added as a filler in some labels. For example, three pad characters, "0" are added in the label A0001Z. Actuation of a generate button 188 causes label program 300 present to the content of the labels of the job in a display area 184. When the serial job entry is completed, an OK button 190 is actuated. This causes the labels of the job to be placed in a data file.

Referring to FIG. 9, a display screen 181 for the formation of a positional palette is shown. Display screen 181 includes a positional palette name area 183 for entry of the positional palette name. An attribute area 198 includes a plurality of entry areas to define the attributes of the positional palette. Attribute area 198 includes a position area 197 for identifying the current character position for which attributes are being defined. For the current character position, the foreground color is entered in a foreground color area 187 and the background color is entered in a background area 189. A font attributes area 199 includes a font name area 191 for entry of a desired font name, a font size area 193 for entry of a font size and a font style area 195 for entry of a font style, such as normal, bold, italics, underscore, and the like. A shape attributes area 201 includes a type area 203, a size area 205 and a color area 207. Shape attributes area 201 permits entry of a geometrical shape in

a character position. The shape, for example, may be a circle, a triangle, a rectangle, a square or any other shape. This shape is entered in type area 203. Size area 205 is for entry of the size of the shape, for example as a percentage of the character position area. Color area 207 is for entry of the color of the shape. To identify the character positions that the entered attributes are to apply, a check is entered in the box adjacent its number in a display area 185. If there is no check mark for a position, that position can be defined by a character palette. When the positional palette has been defined, an OK button 196 is actuated.

Referring to FIG. 10, a display screen 200 for printing entries is shown. Display screen 200 includes a printer definition area 202, a print range area 204, a starting point area 206 and a print orientation area 215. Print range area 204 includes an all labels area 208 and a selected labels area 210. If selected labels area 210 is selected, a drop down box or other selection technique may be used for identifying the selected labels. Starting point area 206 includes a row area 212 and a column area 214 to identify the label blank on a label stock at which printing is to begin. Print orientation area 215 includes a row area 216 and a column area 218. If row area is selected, printing proceeds serial by row of the label stock. If column area 218 is selected, printing proceeds serial by column of the label stock.

Referring to FIG. 11, label program 300 begins at step 302 with a determination of whether a job name has been entered. If not, step 302 continues until a job name is

entered. When entered, step 304 determines if the job is an ad hoc job. If not, the job is serial and control passes to a point 14 that is continued in FIG. 14.

If step 304 determines that the job is an ad hoc job, step 308 determines if labels are to be imported. If yes, step 310 adds the imported labels to the job. Step 312 then determines if more labels are in the job. If not, control passes to point 17 that is continued in FIG. 17. If yes, step 308 is repeated. If step 308 determines that labels are to be imported, steps 310 and 312 are repeated. When step 308 determines that no labels are to be imported, step 314 presents ad hoc display screen 90 and waits for a label template to be selected.

When a label template has been selected, step 316 determines if a positional palette has been selected and, if yes, sets the selected positional palette and control passes to step 320. If not, step 318 sets a default positional palette. Step 320 then determines if a character palette has been selected and, if yes, sets the selected character palette. If not, step 322 sets a default character palette. Steps 320 or 322 pass control to point 12 that is continued in FIG. 12.

Referring to FIG. 12, point 12 continues with step 324 that determines if the bar code is to be suppressed. If yes, step 326 sets bar code suppress and control passes to step 328. If not, step 328 determines if the characters are to be suppressed. If yes, step 330 sets characters suppress and passes control to step 332. If not, step 332 determines if a bar code orientation has been entered. If

yes, step 334 sets the selected orientation. If not, step 336 sets a default orientation. Step 338 then determines if the bar code is to be rotated. If so, step 340 sets rotate bar code. Step 342 then determines if a check character has been entered. If yes, step 343 sets the selected check character. After step 343 or if step 342 determines that a check character is not selected, control passes to point 13, which is continued in FIG. 13.

Referring to FIG. 13, point 13 continues with step 346 that determines if a label indicator has been entered. If not, control passes to step 356. If yes, step 348 sets label indicator. Step 350 then waits for entry of an indicator position. When entered the indicator position is set by step 352. Step 356 waits for actuation of add labels button 166 or add button 138. When either is actuated, step 358 presents a clear display screen 120. Step 356 waits for label content to be added. When label content has been entered, step 360 waits for entry of label content.

Step 362 determines if there is a change in positional palette for this label. If yes, step 364 sets the change and control passes to step 366. If step 362 determines there is no change, step 366 determines if there is a change in character palette for this label. If yes, step 368 sets the change and control passes to step 370. If step 366 determines there is no change, step 370 determines if add button 138 or OK button 140 has been actuated (FIG. 7). If add button 138 is actuated, steps 356 through 370 are repeated. If OK button 140 is actuated, control passes to point 17, which is continued in FIG. 17.

Referring to FIG. 14, point 14 continues to step 380 that presents serial screen 142 (FIG. 8) and records a template selection. Step 382 records a prefix, if selected. Step 384 records a suffix, if selected. Step 386 records the starting number for the ordered sequence. Step 388 determines if a label indicator has been entered. If not, control passes to step 392. If yes, step 390 sets label indicator and indicator position. Step 392 determines if the bar code is to be suppressed. If yes, step 394 sets bar code suppress and control passes to point 15, which is continued in FIG. 15. If not, step 396 determines if the characters are to be suppressed. If yes, step 398 sets characters suppress and control passes to step 400. If not, step 400 determines if a bar code orientation has been entered. If yes, step 402 sets the selected orientation. If not, step 404 sets a default orientation. Step 406 then determines if the bar code is to be rotated. If so, step 408 sets rotate bar code. Control from steps 406 and 408 passes to point 15, which continues in FIG. 15.

Referring to FIG. 15, point 15 continues to step 412 that determines if a check character has been entered. If yes, step 414 sets the selected check character and control passes to step 416. If step 412 determines that no check character has been entered, step 416 determines if increment is set. If yes, step 418 records increment set. If not, step 420 records decrement set. Step 422 records the amount of increment or decrement. Step 424 records the total label length. Step 426 determines if pad characters have been entered and, if yes, step 428 records the pad

characters. Control passes from steps 426 and 428 to a point 16 that is continued in FIG. 16.

Referring to FIG. 16, point 16 continues to step to step 430 that determines if a positional palette has been selected and, if not, records a default positional palette. If yes, step 432 records the selected positional palette. Step 434 determines if a character palette has been selected and, if not, records a default character palette. If yes, step 436 records the selected character palette. Step 438 determines if the ordered sequence is to be continued after printing. If so, step 440 records or sets continue the sequence. Step 442 waits for actuation of generate labels button 188 (FIG. 8). When generate labels button 188 has been actuated, step 444 forms a labels sequence file. Step 446 waits for actuation of OK button 190 (FIG. 8). When OK button 190 has been actuated, control passes to a point 17 that is continued in FIG. 17.

Referring to FIG. 17, point 17 continues at step 450 that presents print screen 200 of FIG. 10. Step 452 determines if all labels are selected. If not, step 454 determines if selected label area 210 is selected. If not, step 452 is repeated. If yes, step 456 presents a label selection box and records the labels by the user and control passes to step 458. If step 452 determines that all labels are selected, control passes to step 458. Step 458 determines if a print starting point has been entered. If yes, step 460 records the entered start point. If not, step 462 sets a default start point. Step 464 determines if printing is serial by row and, if yes records serial by row. If not, step 466 records serial by column. Step 468

waits for actuation of OK button 216 and, when actuated, begins a print operation to print the labels of the label job.

Referring to FIG. 18, a label meter screen 220 has a current label count area 222 in which is presented the current count or number of labels in the user's label inventory. A request amount area 224 is for user entry of a refill order amount. An order button 226, when actuated by the user, will start an order process with a label vendor, for example, vendor computer 36 of FIG. 1. A received amount area 228 is for user entry of a refill quantity of labels that have been received. A set warning level button 230, when actuated will present a dialog box (not shown) for setting or adjusting a warning count that represents a low inventory level. Actuation of an OK button 232 will enter the refill quantity and any changes to the warning count into label meter program 500.

Referring to FIG. 19, label meter program 500 begins at step 502 that determines if the current label count is greater than the warning count. If yes, control passes to step 510. If no, step 504 presents label meter screen 502. Step 506 records any refill order entered and placed by actuation of order button 226. Step 508 records any entry of a refill quantity that has been received. Step 510 checks if any labels have been used by any job since the last time program 500 has run. Step 512 updates the current label count with any refill labels received and any labels used. Step 514 determines if a warning count change has been entered. If yes, step 516 updates the warning count and step 502 is repeated. If step 514 determines

that there has been no change to the warning count, program 500 is exited.

Program 500 is run periodically either as a part of label program 300 or separately therefrom. In either event, if the number of labels of a job being created, exceeds the current label count, execution of the job will be prevented. The label meter program is advantageous as it serves as a reminder for the user to order refill labels and prevents execution of current jobs if the user's label inventory is inadequate for the job.

The present invention having been thus described with particular reference to the preferred forms thereof, it will be obvious that various changes and modifications may be made therein without departing from the spirit and scope of the present invention as defined in the appended claims.

WHAT IS CLAIMED IS:

1. A method of forming a plurality of labels with a computer in response to entries from an input means, wherein each of said plurality of labels has a plurality of positions, said method comprising:

(a) defining a label with alphanumeric content for one or more of said plurality of positions in response to a first entry;

(b) repeating step (a) to define said plurality of labels, wherein at least one of said plurality of labels is unrelated in numerical sequence to any of the other labels of said plurality of labels; and

(c) printing said plurality of labels on a label stock.

2. The method of claim 1, further comprising (d) assigning a positional palette to at least one of said plurality of positions of said plurality of labels in response to a second entry.

3. The method of claim 2, wherein said positional palette includes one or more attributes selected from the group consisting of a background color, a foreground color, a font, a font size, a font style, a shape, a shape size, and a shape color.

4. The method of claim 2, wherein said second entry is a selection of a positional palette from a repertoire of positional palettes.

5. The method of claim 1, wherein each of said plurality of labels has a bar code, and further comprising (e) assigning a location to said bar code relative to said plurality of positions in response to a third entry.

6. The method of claim 1, further comprising (f) suppressing the printing by step (c) of a bar code in response to a fourth entry.

7. The method of claim 1, further comprising (g) suppressing the printing by step (c) of at least one of said plurality of positions in response to a fifth entry.

8. The method of claim 1, wherein each of said plurality of labels has a bar code, said bar code having a plurality of elements and further comprising (h) assigning a rotational orientation to said plurality of elements of at least one of said plurality of labels in response to a sixth entry.

9. The method of claim 1, further comprising (i) presenting to a user a list of all labels created by steps (a) and (b) prior to printing by step (c).

10. A computer for making a plurality of labels, wherein each label has a plurality of positions, said computer comprising:

a processor, a memory, a display, an input means and a printer;

a program stored in said memory for controlling said processor in response to entries from said input means to make said labels by performing a plurality of operations that comprise:

(a) defining a label with alphanumeric content for one or more of said plurality of positions in response to a first entry;

(b) repeating operation (a) to define said plurality of labels, wherein at least one of said plurality of labels is unrelated in numerical sequence to any of the other labels of said plurality of labels; and

(c) printing said plurality of labels with said printer on a label stock.

11. The computer of claim 10, wherein said operations further comprise (d) assigning a positional palette to at least one of said plurality of positions of said plurality of labels in response to a second entry.

12. The computer of claim 11, wherein said positional palette includes one or more attributes selected from the group consisting of a background color, a foreground color, a font, a font size, a font style, a shape, a shape size, and a shape color.

13. The computer of claim 11, wherein said second entry is a selection of a positional palette from a repertoire of positional palettes.

14. The computer of claim 10, wherein each of said labels has a bar code, and wherein said operations further comprise (e) assigning a location to said bar code relative to said plurality of positions in response to a third entry.

15. The computer of claim 10, wherein said operations further comprise (f) suppressing the printing by operation (c) of a bar code in response to a fourth entry.

16. The computer of claim 10, wherein said operations further comprise (g) suppressing the printing by operation (c) of at least one of said plurality of positions in response to a fifth entry.

17. The computer of claim 10, wherein each of said plurality of labels has a bar code, said bar code having a plurality of elements and wherein said operations further comprise (h) assigning a rotational orientation to said plurality of elements of at least one of said plurality of labels in response to a sixth entry.

18. The computer of claim 10, wherein said operations further comprise (i) presenting on said display a list of said labels created by operations (a) and (b) prior to printing by operation (c).

19. A memory medium for a computer that controls the making of a plurality of labels in response to entries from an input means, wherein each label has a plurality of positions, said memory medium comprising:

first means for controlling said computer in response to a first entry, to define a first label with alphanumeric content for one or more of said plurality of positions;

second means for controlling said computer to cause said first means to define additional labels, wherein said first label and said additional labels form said plurality of labels, and wherein at least one of said plurality of labels is unrelated in numerical sequence to any of the other labels of said plurality of labels; and

third means for controlling said computer to print said plurality of labels on a label stock.

20. The memory medium of claim 19, further comprising fourth means for controlling said computer to assign a positional palette to at least one of said plurality of positions of said plurality of labels in response to a second entry.

21. The memory medium of claim 20, wherein said positional palette includes one or more attributes selected from the group consisting of a background color, a foreground color, a font, a font size, a font style, a shape, a shape size and a shape color.

22. The memory medium of claim 20, wherein said second entry is a selection of a positional palette from a repertoire of positional palettes.

23. The memory medium of claim 20, wherein each of said plurality of labels has a bar code and further comprising fifth means for controlling said computer to assign a location to said bar code relative to said plurality of positions in response to a third entry.

24. The memory medium of claim 19, further comprising a sixth means for controlling said computer to suppress the printing by said third means of a bar code in response to a fourth entry.

25. The memory medium of claim 19, further comprising a seventh means for controlling said computer to suppress the printing by said third means of at least one of said plurality of positions in response to a fifth entry.

26. The memory medium of claim 19, wherein each of said labels has a bar code, said bar code having a plurality of elements and further comprising eighth means for controlling said computer to assign a rotational orientation to said plurality of elements of at least one of said plurality of labels in response to a sixth entry.

27. The memory medium of claim 19, further comprising ninth means for controlling said computer to present on a display a list of said labels created by said first and second means prior to printing by said third means.

28. A method of forming a plurality of labels with a computer in response to entries from an input means, wherein each of said plurality of labels has a plurality of positions, said method comprising:

(a) assigning a first positional palette to a first one of said plurality of positions of each label of said plurality of labels in response to a first entry;

(b) assigning alphanumeric content to at least one of said plurality of positions of each label of said plurality of labels in response to a second entry; and

(c) printing said plurality of labels on a label stock.

29. The method of claim 28, wherein said positional palette includes one or more attributes selected from the group consisting of a background color, a foreground color, a font, a font size, a font style, a shape, a shape size and a shape color.

30. The method of claim 28, wherein one or more of said plurality of positions is a prefix, and wherein said first position of step (a) is in said prefix.

31. The method of claim 28, wherein one or more of said plurality of positions is a suffix, and wherein said first position of step (a) is in said suffix.

32. The method of claim 29, wherein step (a) assigns a second positional palette to a second position of said plurality of positions.

33. The method of claim 29, wherein said first and second positional palettes are different.

34. The method of claim 28, wherein said label stock includes an array of label blanks, and further comprising (d) causing step (c) to begin said printing at a specified one of said label blanks in response to a third entry.

35. The method of claim 34, wherein said array has a plurality of rows and a plurality of columns of said labels blanks, and further comprising (e) causing step (c) to print said labels on said label stock serial by row in response to a fourth entry.

36. The method of claim 35, wherein said fourth entry causes step (c) to print said labels on said label stock serial by column.

37. The method of claim 28, further comprising (f) presenting at least one of said plurality of labels on a display prior to printing by step (c).

38. The method of claim 28, further comprising:

(g) assigning an ordered numerical sequence to said plurality of labels in response to a fifth entry; and

(h) saving data for said ordered numerical sequence and plurality of labels so that another plurality of labels can continue in said ordered numerical sequence with a first label thereof having the next number of said ordered numerical sequence that succeeds the last number used by step (g).

39. A computer for making a plurality of labels, wherein each of said plurality of labels has a plurality of positions, said computer comprising:

a processor, a memory, a display, an input means and a printer;

a program stored in said memory for controlling said processor in response to entries from said input means to make said labels by performing a plurality of operations that comprise:

(a) assigning a first positional palette to a first one of said plurality of positions of each label of said plurality of labels in response to a first entry;

(b) assigning alphanumeric content to at least one of said plurality of positions of each label of said plurality of labels in response to a second entry; and

(c) printing said plurality of labels with said printer on a label stock.

40. The computer of claim 39, wherein said positional palette includes one or more attributes selected from the group consisting of a background color, a foreground color, a font, a font size, a font style, a shape, a shape size, and a shape color.

41. The computer of claim 39, wherein one or more of said plurality of positions is a prefix, and wherein said first position of operation (a) is in said prefix.

42. The computer of claim 46, wherein one or more of said plurality of positions is a suffix, and wherein said first position of step (a) is in said suffix.

43. The computer of claim 40, wherein operation (a) assigns a second positional palette to a second position of said plurality of positions.

44. The computer of claim 43, wherein said first and second positional palettes are different.

45. The computer of claim 39, wherein said label stock includes an array of label blanks, and wherein said plurality of operations further comprise (d) operation (c) begins said printing at a specified one of said label blanks in response to a third entry.

46. The computer of claim 45, wherein said array has a plurality of rows and a plurality of columns of said labels blanks, and wherein said plurality of operations further comprise (e) operation (c) prints said labels on said label stock serial by row in response to a fourth entry.

47. The computer of claim 45, wherein said fourth entry causes operation (c) to print said labels on said label stock serial by column.

48. The computer of claim 39, wherein said plurality of operations further comprise (f) presenting at least one of said labels on a display prior to printing by operation (c).

49. The computer of claim 46, wherein said plurality of operations further comprise:

(g) assigning an ordered numerical sequence to said plurality of labels in response to a fifth entry; and

(h) saving data for said ordered numerical sequence and plurality of labels so that another plurality of labels can continue in said ordered numerical sequence with a first label thereof having the next number of said ordered numerical sequence that succeeds the last number used by operation (g).

50. A memory medium for a computer that controls the making of a plurality of labels in response to entries from an input means, wherein each of said plurality of labels has a plurality of positions, said memory medium comprising:

first means for controlling said computer to assign a first positional palette to a first one of said plurality

of positions of each label of said plurality of labels in response to a first entry;

second means for controlling said computer to assign alphanumeric content to at least one of said plurality of positions of each label of said plurality of labels in response to a second entry; and

third means for controlling said computer to print said plurality of labels with a printer on a label stock.

51. The computer of claim 50, wherein said positional palette includes one or more attributes selected from the group consisting of a background color, a foreground color, a font, a font size, a font style, a shape, a shape size and a shape color.

52. The memory medium of claim 50, wherein one or more of said plurality of positions is a prefix, and wherein said first position is in said prefix.

53. The memory medium of claim 50, wherein one or more of said plurality of positions is a suffix, and wherein said first position is in said suffix.

54. The memory medium of claim 52, wherein said first means assigns a second positional palette to a second position of said plurality of positions.

55. The memory medium of claim 54, wherein said first and second positional palettes are different.

56. The memory medium of claim 50, wherein said label stock includes an array of label blanks, and further comprising fourth means for controlling said computer in response to a third entry, to cause said third means to begin printing at a specified one of said label blanks.

57. The memory medium of claim 56, wherein said array has a plurality of rows and a plurality of columns of said labels blanks, and further comprising fifth means for controlling said computer, to print said labels on said label stock serial by row in response to a fourth entry.

58. The memory medium of claim 56, wherein said fourth entry causes said third means to print said labels on said label stock serial by column.

59. The memory medium of claim 50, further comprising sixth means for controlling said computer to present at least one of said labels on a display prior to printing by said third means.

60. The memory medium of claim 50, further comprising:

seventh means for controlling said computer in response to a fifth entry to assign an ordered numerical sequence to said plurality of labels; and

eighth means for controlling said computer to save data for said ordered numerical sequence and said plurality of labels so that another plurality of labels can continue in said ordered numerical sequence with a first label thereof having the next number of said ordered numerical

sequence that succeeds the last number used by said seventh means.

61. A method of managing an inventory of label stock for a label making system in response to entries from an input device, said method comprising:

(a) keeping a current count of labels in said inventory and a warning count;

(b) presenting an alert to a user when said current count is less than said warning count;

(c) adjusting said current count with a number of refill labels received in response to a first entry by said user; and

(d) adjusting said current count as labels of said inventory are used by said user.

62. The method of claim 61, further comprising (e) adjusting said warning count in response to a second entry by said user.

63. The method of claim 61, further comprising (f) automatically placing an order for a quantity of labels in response to a third entry.

64. A computer for making a plurality of labels comprising:

a processor, a memory, a display and an input means;

a label meter program stored in said memory to control said processor to keep track of an inventory of said plurality of labels by performing a plurality of operations that comprise:

(a) keeping a current count of said plurality of labels in said inventory and a warning count;

(b) presenting an alert to a user when said current count is less than said warning count;

(c) adjusting said current count with a number of refill labels received in response to a first entry by said user; and

(d) adjusting said current count as labels of said inventory are used by said user.

65. The computer of claim 64, wherein said plurality of operations further comprise (e) adjusting said warning count in response to a second entry by said user.

66. The computer of claim 64, wherein said plurality of operations further comprise (f) automatically placing an order for a quantity of labels in response to a third entry.

67. A memory medium for a computer that controls the making of a plurality of labels comprising:

first means for controlling said computer to keep a current count of said plurality of labels in an inventory of labels;

second means for controlling said computer to keep a warning count;

third means for controlling said computer to present an alert to a user when said current count is less than said warning count;

fourth means for controlling said computer in response to a first entry by said user, to adjust said current count with a number of refill labels received; and

fifth means for controlling said computer to adjust said current count as labels of said inventory are used by said user.

68. The memory medium of claim 67, further comprising sixth means for controlling said computer to adjust said warning count in response to a second entry by said user.

69. The memory medium of claim 67, further comprising sixth means for controlling said computer to automatically place an order for a quantity of labels in response to a third entry.

ABSTRACT OF THE DISCLOSURE

A label making system that includes a computer with a label making program and a label meter program. The label making program has a positional palette feature that permits the assignment of an attribute scheme to character positions of a multi-position label independent of the alphanumeric content of the positions. Other features include an ad hoc job that permits the formation of a plurality of unrelated labels in a single job, but yet is versatile enough to include labels that have some ordered relationship. Another feature is the ability to manipulate the bar code position and even to suppress the bar code. The labels can be printed serial by row or serial by column of a label stock. The label meter program automatically keeps track of a user's label stock inventory.

D0000000000000000

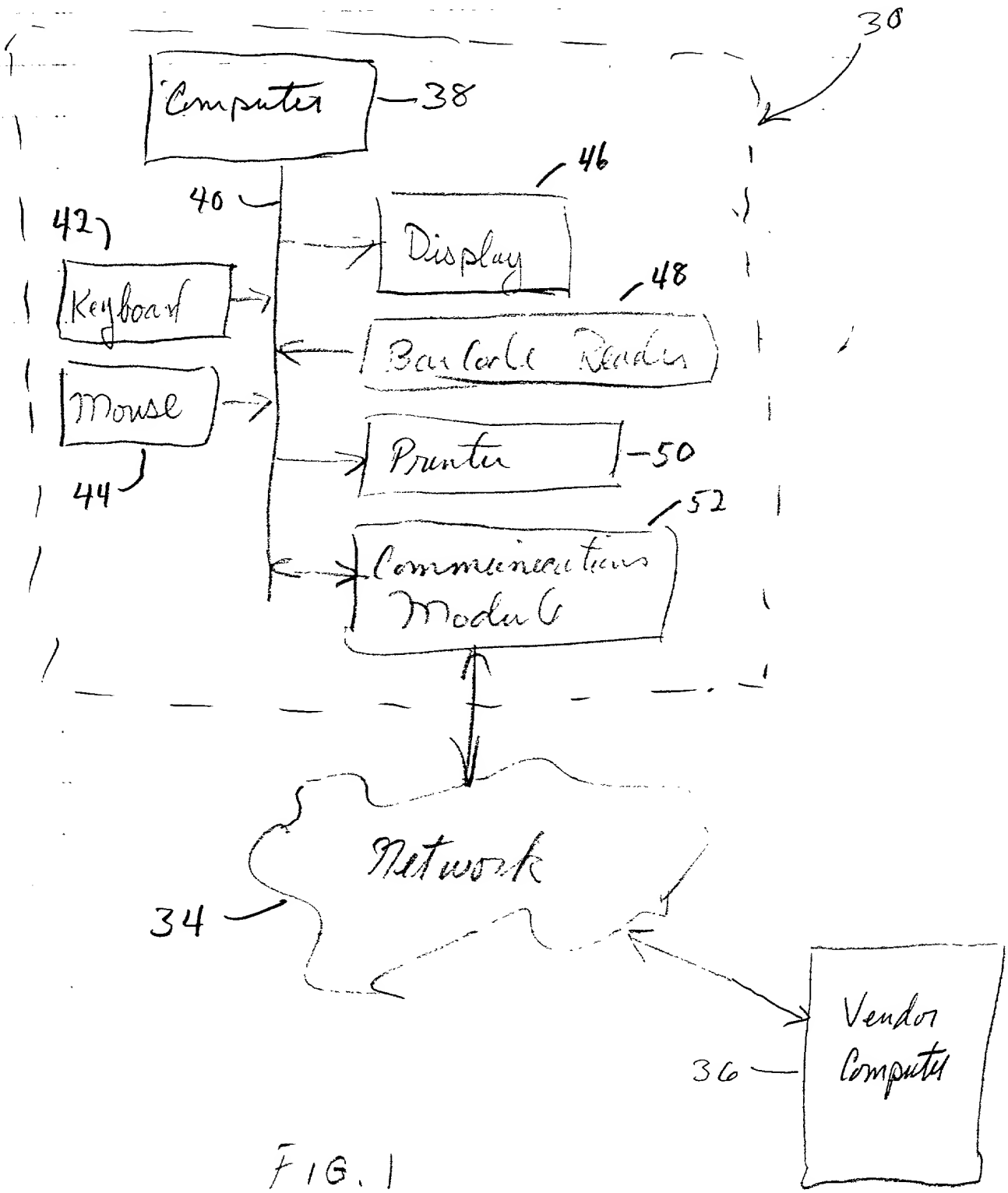
30
Computer
38
40
46
Display
42
Keyboard
48
Barcode Reader
Mouse
Printer
50
44
52
Communications Module
Network
34
Vendor Computer
36

FIG. 1

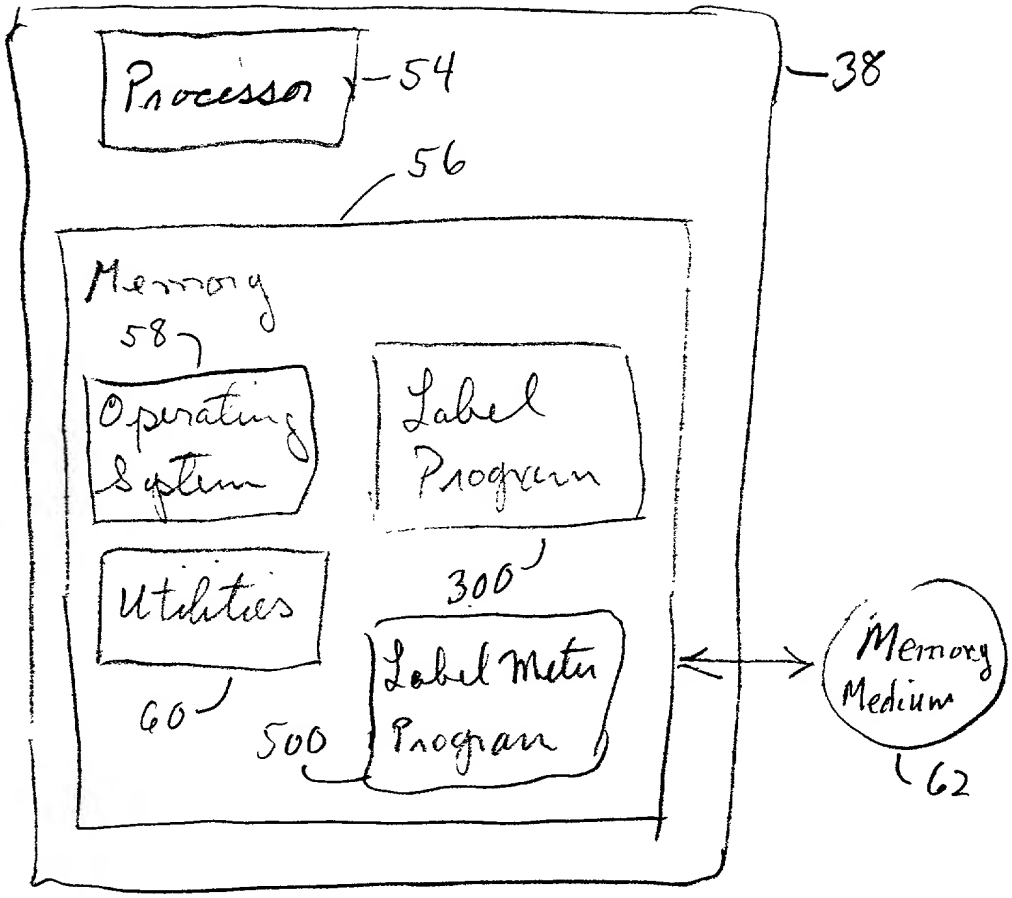
Processor
54
38
56
Memory
58
Operating System
Label Program
300
Utilities
60
Label Metn Program
500
Memory Medium
62

FIG. 2

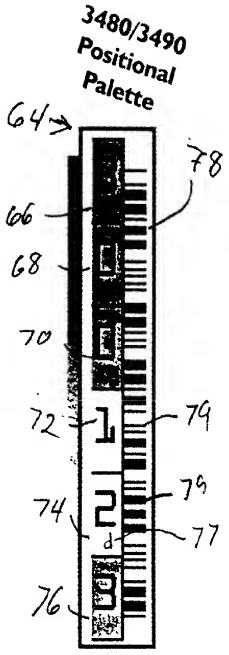

FIG. 3

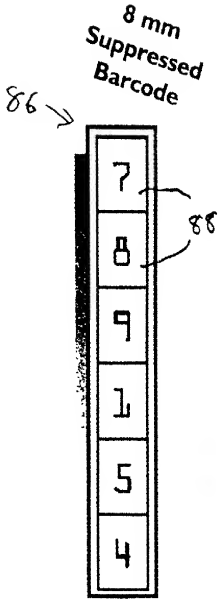

FIG. 5

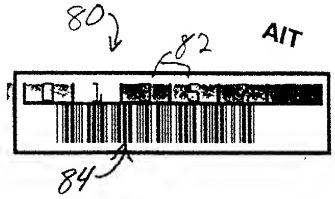

FIG. 4

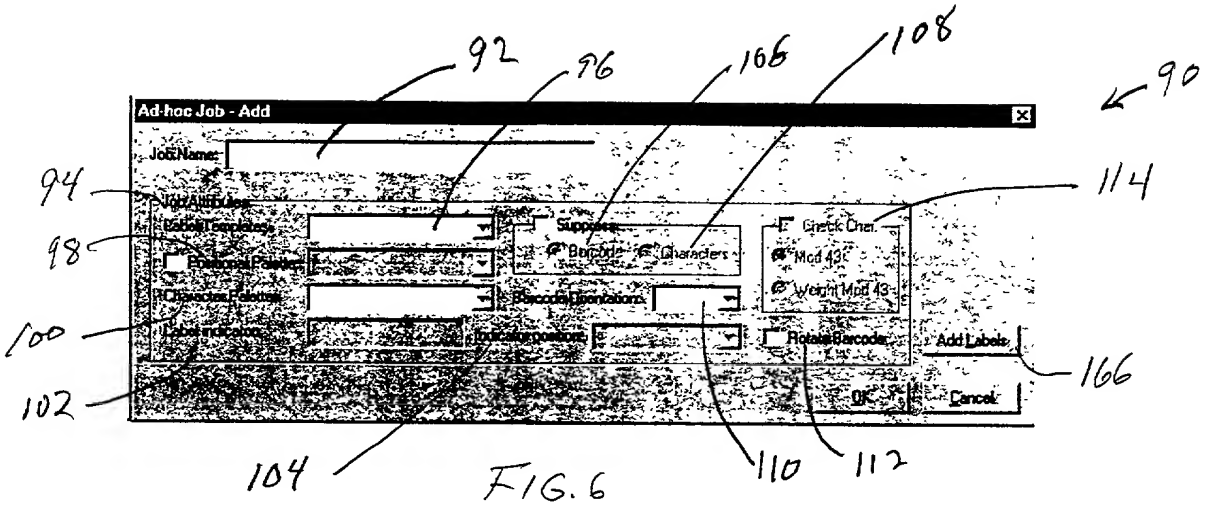
Ad-hoc Job - Add
Job Name:
Job Attributes
Label Template:
Positional Palette:
Character Palette:
Label Indicator:
Suppress
Barcode
Characters
Barcode Orientation:
Indicator position:
Check Char
Mod 43
Weight Mod 43
Rotate Barcode
Add Labels
OK
Cancel
92
96
166
108
90
94
114
98
100
102
166
104
110
112

FIG. 6

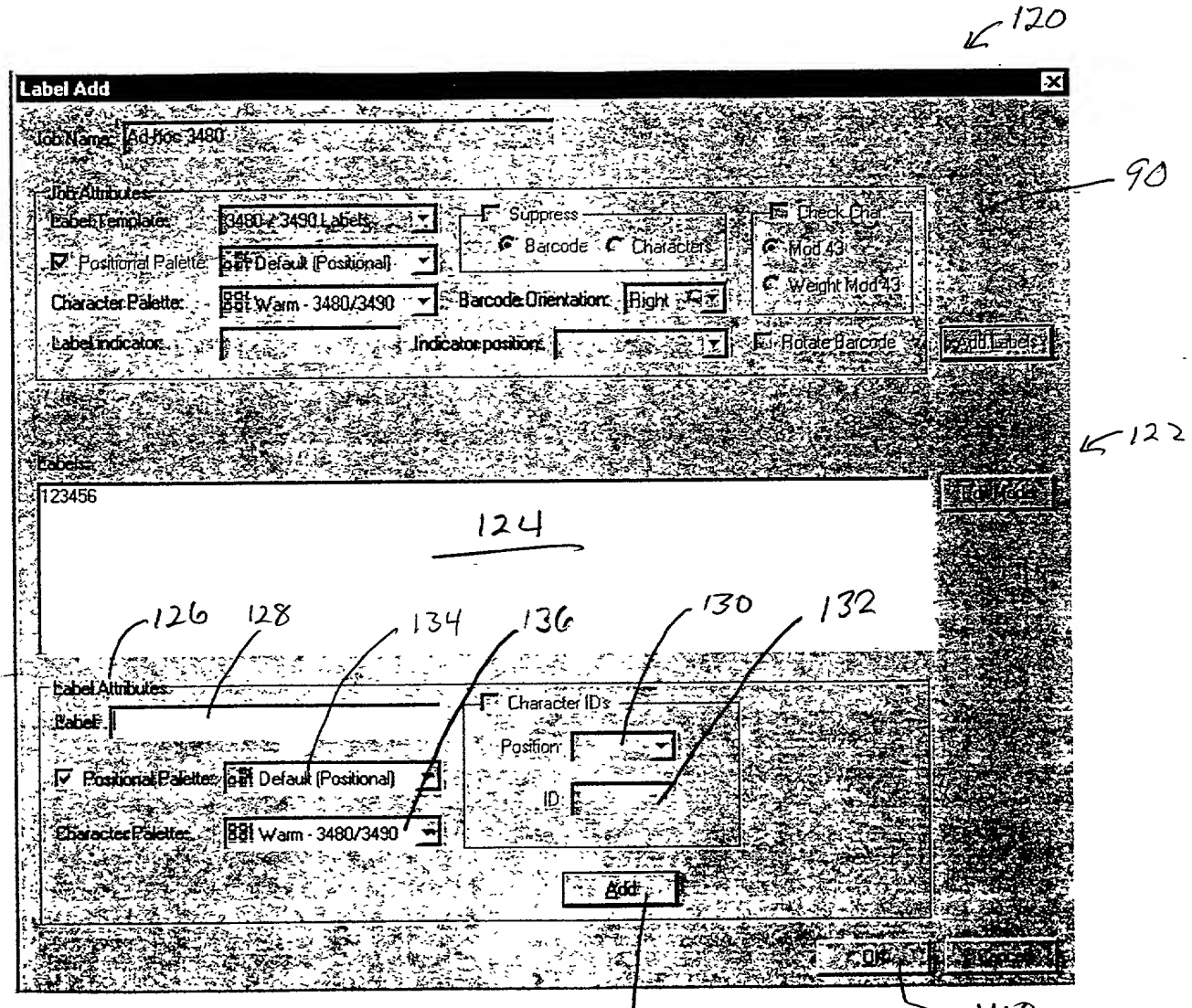
Label Add
Job Name: Ad-hoc 3480
Job Attributes
Label Template: 3480 / 3490 Labels
Positional Palette: Default (Positional)
Character Palette: Warm - 3480/3490
Label Indicator:
Suppress
Barcode
Characters
Barcode Orientation: Right
Indicator position:
Check Char
Mod 43
Weight Mod 43
Rotate Barcode
Add Labels
Labels:
123456
Remove
124
Label Attributes
Label:
Positional Palette: Default (Positional)
Character Palette: Warm - 3480/3490
Character ID's
Position:
ID:
Add
OK
Cancel
120
90
122
126
128
134
136
130
132
138
140

FIG. 7

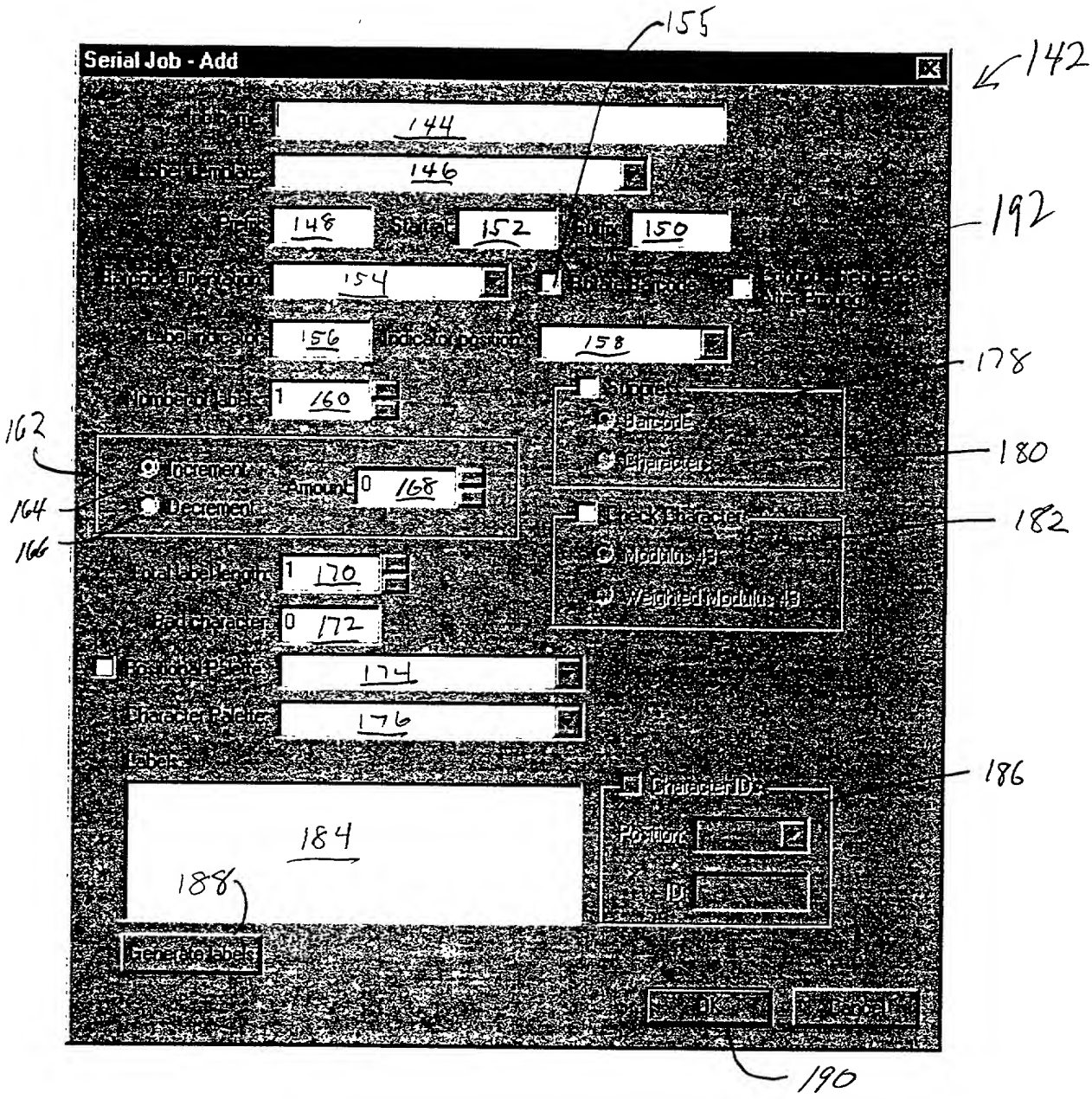
Serial Job - Add
144
146
148
152
150
154
156
158
160
162
164
166
168
170
172
174
176
178
180
182
184
186
188
190
192
Increment
Decrement
Barcode
Characters
Modulus 43
Weighted Modulus 43
Character ID:
Position:
ID:
Generate Labels
OK
Cancel

FIG. 5

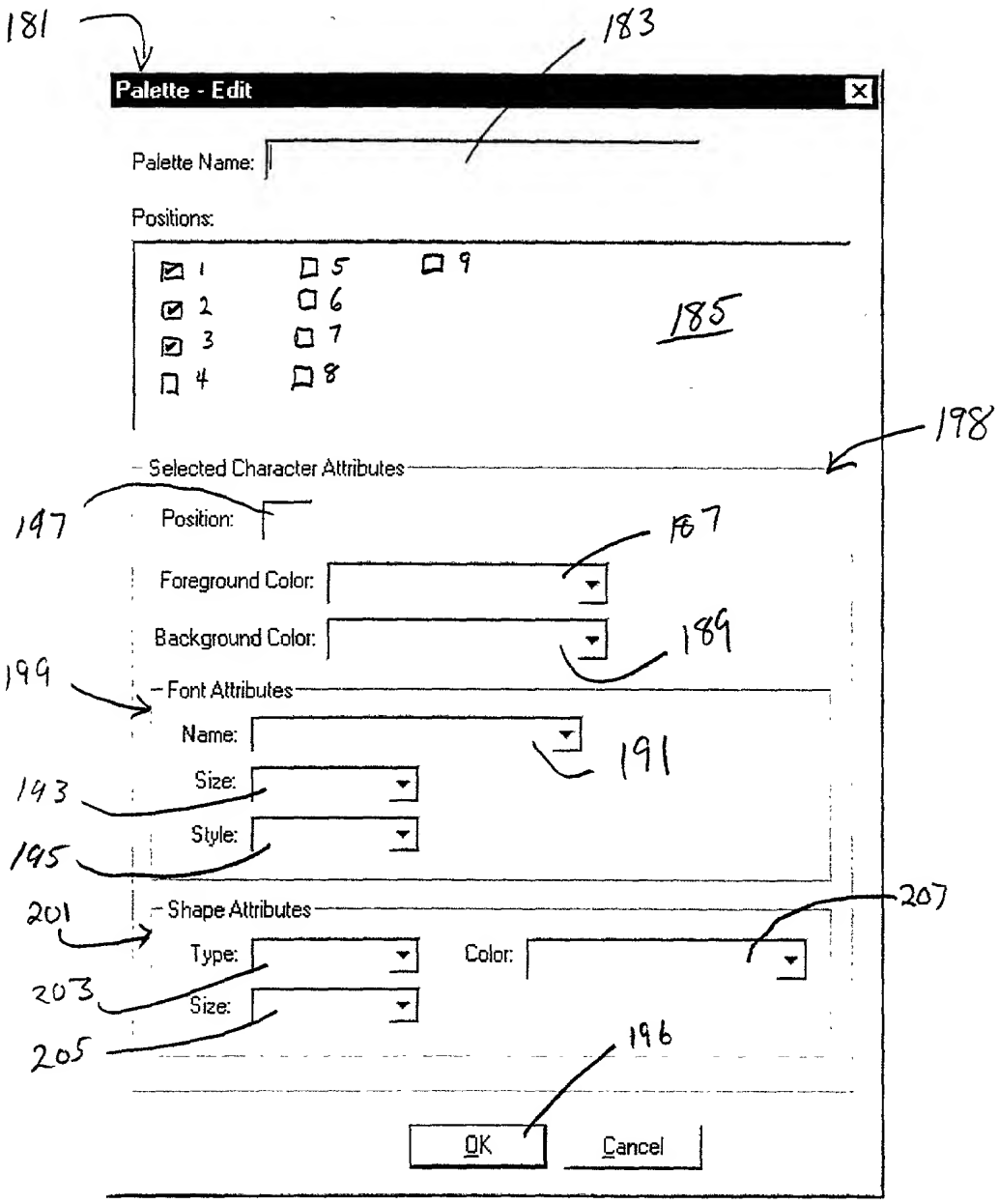
181
183
Palette - Edit
Palette Name:
Positions:
1
2
3
4
5
6
7
8
9
185
198
Selected Character Attributes
197
Position:
187
Foreground Color:
Background Color:
189
199
Font Attributes
Name:
191
Size:
193
Style:
195
201
Shape Attributes
207
Type:
Color:
203
Size:
205
196
OK
Cancel

FIG. 9

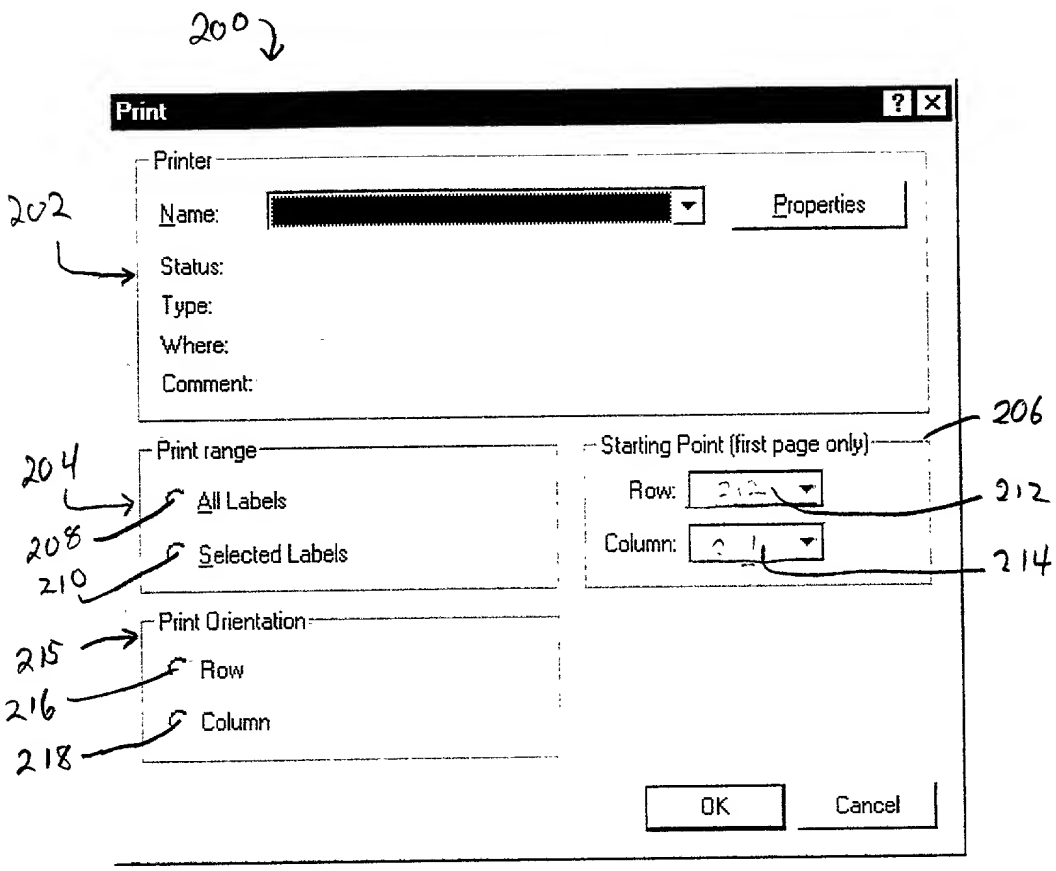
200
Print
Printer
Name:
Properties
202
Status:
Type:
Where:
Comment:
206
Print range
204
All Labels
208
Selected Labels
210
Starting Point (first page only)
Row:
212
Column:
214
Print Orientation
215
Row
216
Column
218
OK
Cancel

FIG. 10

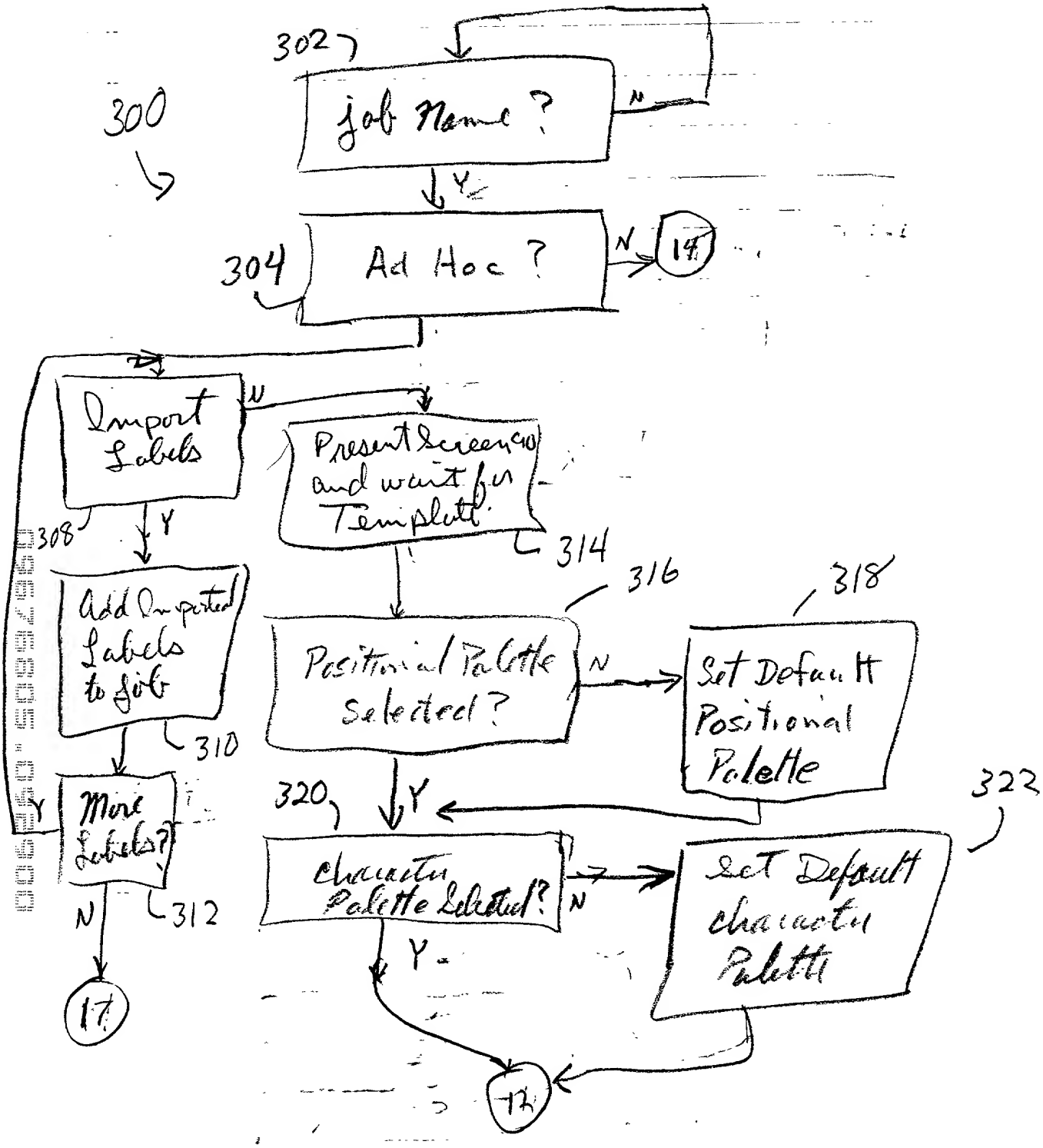
300
302
Job Name ?
N
Y
304
Ad Hoc ?
N
14
Import Labels
N
Present Screen 40 and wait for Template
308
Y
314
Add Imported Labels to Job
316
Positional Palette Selected ?
N
318
Set Default Positional Palette
310
More Labels?
Y
320
Y
322
Character Palette Selected?
N
Set Default character Palette
N
312
Y
17
12

FIG. 11

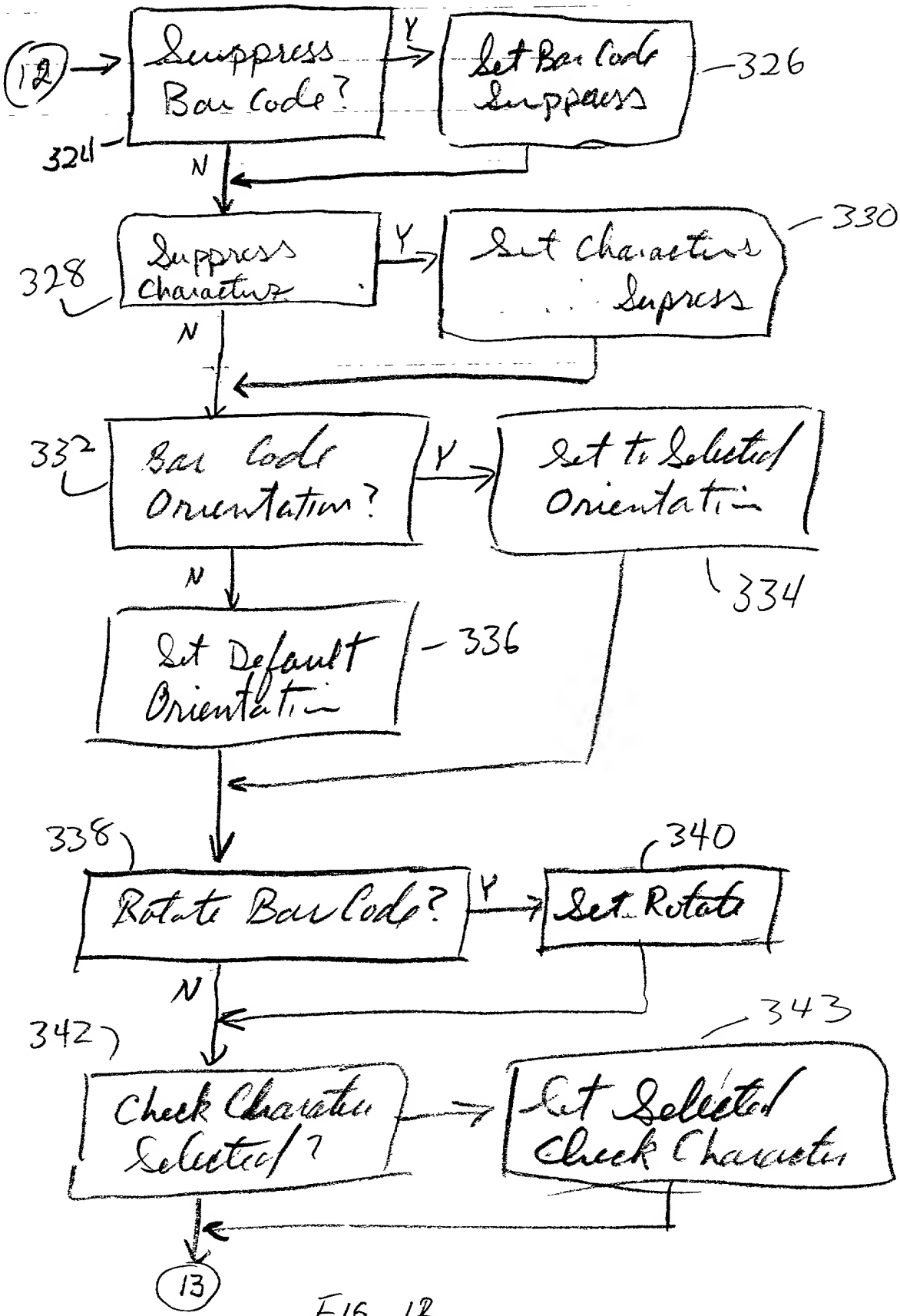
12
Suppress Bar Code?
Y
Set Bar Code Suppress
326
324
N
328
Suppress Characters
Y
Set Characters ... Suppress
330
N
332
Bar Code Orientation?
Y
Set to Selected Orientation
334
N
Set Default Orientation
336
338
Rotate Bar Code?
Y
340
Set Rotate
N
342
Check Character Selected?
343
Set Selected Check Character
13

FIG. 1R

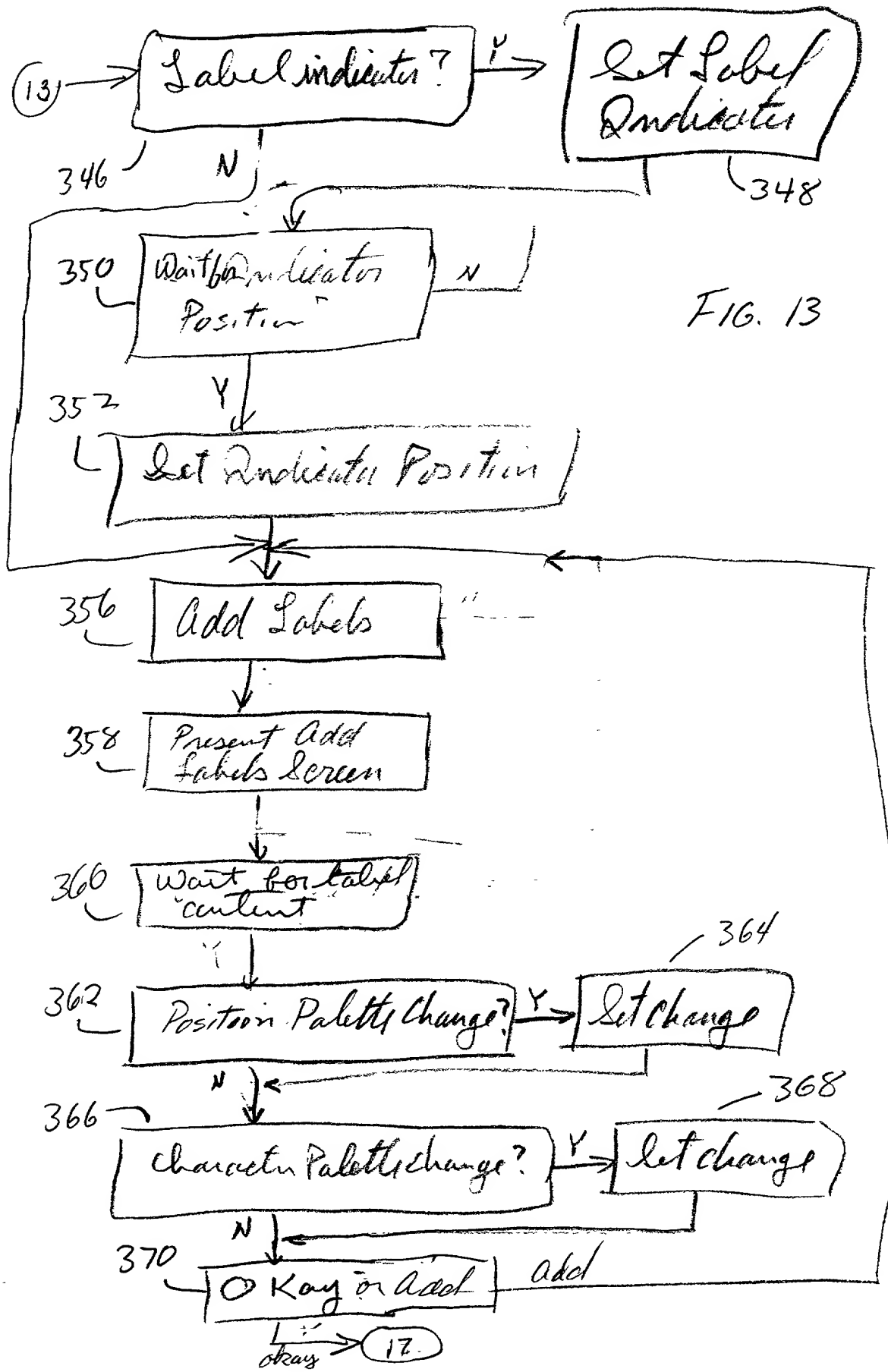
13
Label indicator?
Y
Set Label Indicator
346
N
348
350
Wait for Indicator Position
N
Y
352
Set Indicator Position
356
Add Labels
358
Present Add Labels Screen
360
Wait for Label Content
362
Position Palette Change?
Y
364
Set Change
N
366
Character Palette Change?
Y
368
Set Change
N
370
OKay or Add
Add
Okay
17

FIG. 13

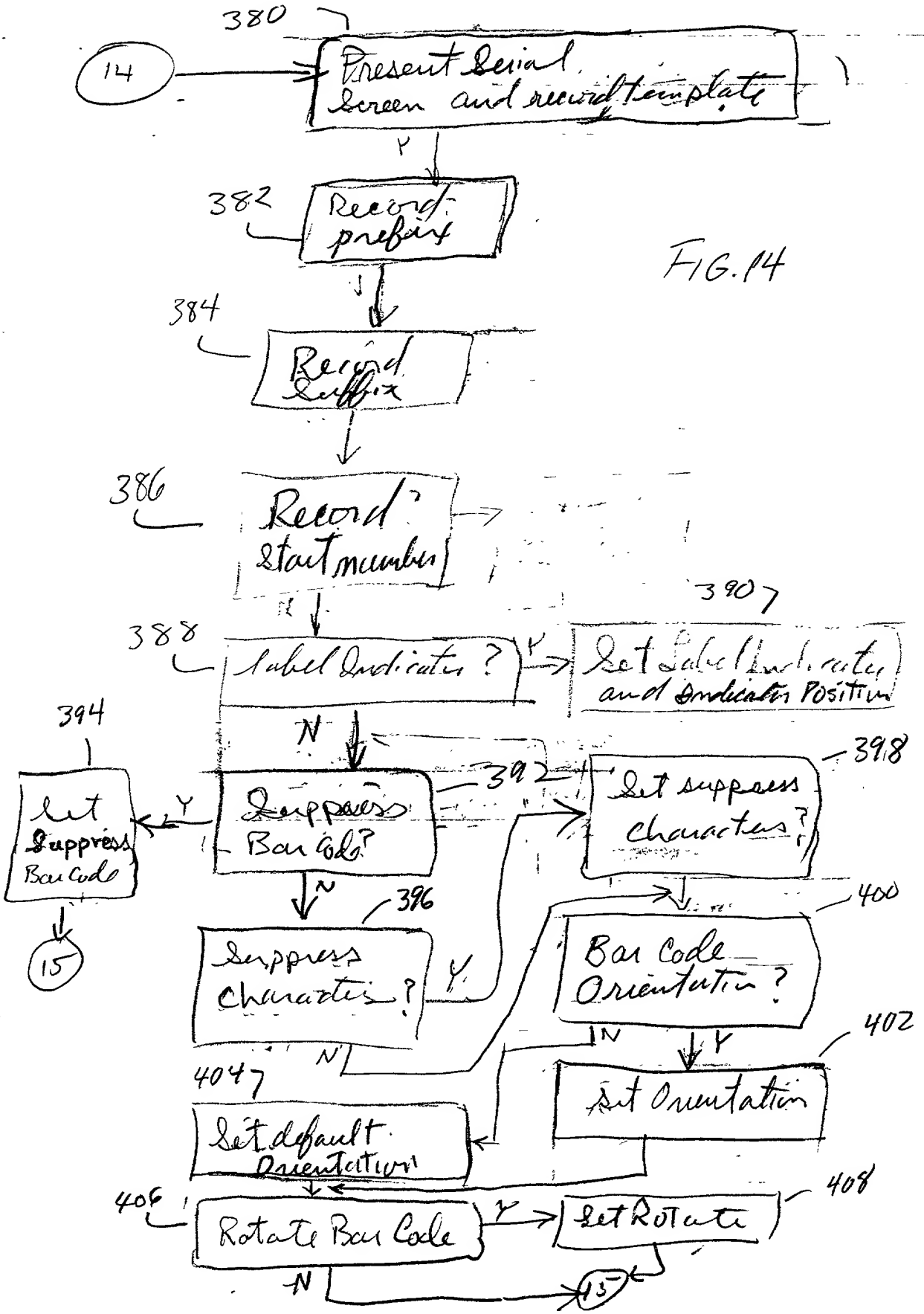
14
380
Present Serial Screen and record template
382
Record prefix
384
Record Suffix
386
Record start number
388
Label Indicator ?
390
Set Label Indicator and Indicator Position
392
Suppress Bar Code?
394
Set Suppress Bar Code
15
396
Suppress characters ?
398
Set suppress characters?
400
Bar Code Orientation ?
402
Set Orientation
404
Set default Orientation
406
Rotate Bar Code
408
Set Rotate
13
Y
N

FIG. 14

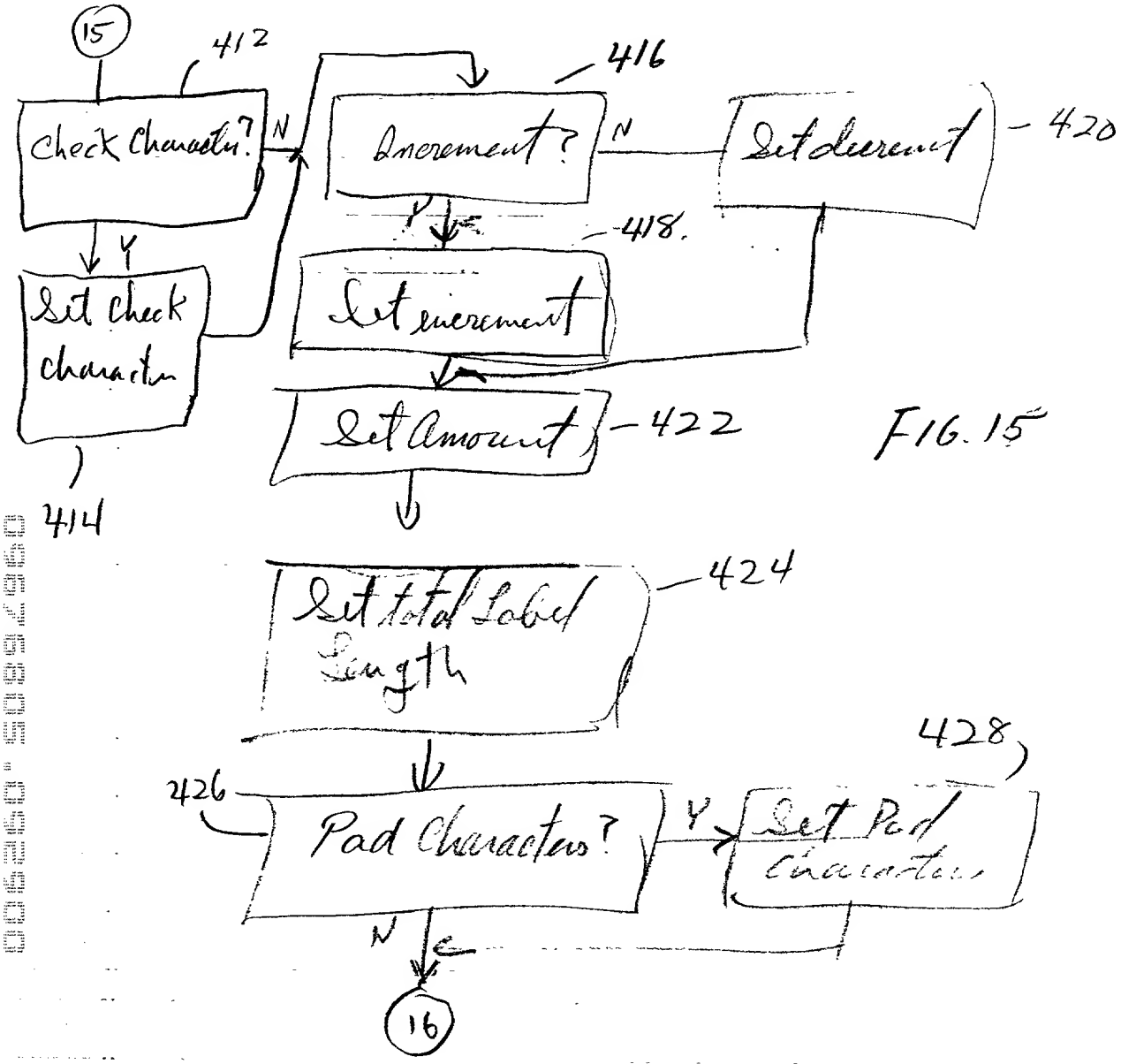
15
412
Check Character?
N
Y
Set check character
414
416
Increment?
N
Y
418
Set increment
Set decrement
420
Set Amount
422
424
Set total Label Length
426
Pad Characters?
Y
428
Set Pad Character
N
16

FIG. 15

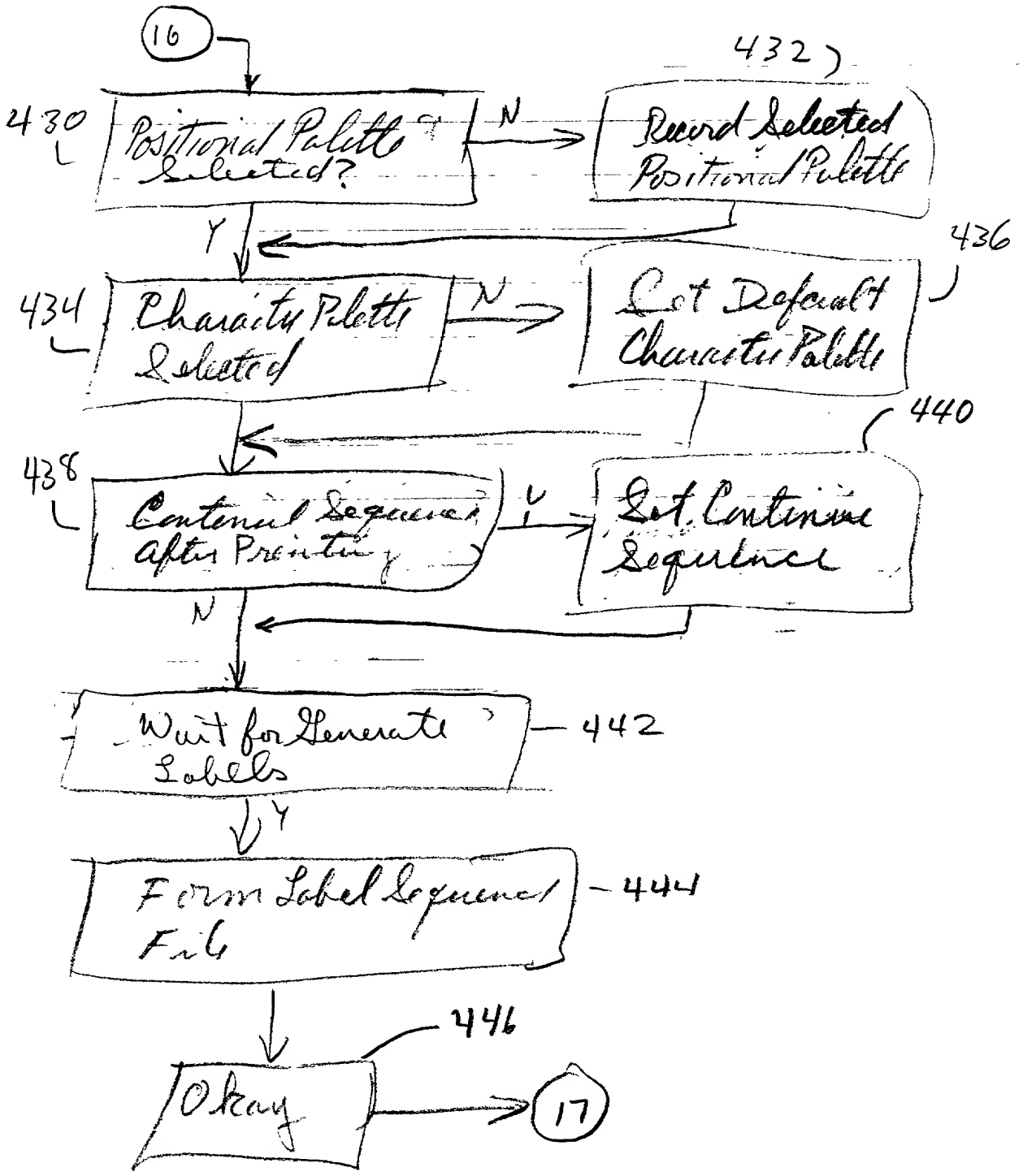
16
430
Positional Palette Selected?
N
432
Record Selected Positional Palette
Y
434
Character Palette Selected
N
436
Set Default Character Palette
438
Centered Sequence after Printing
Y
440
Set Centering Sequence
N
442
Wait for Generate Labels
Y
444
Form Label Sequence File
446
Okay
17

FIG. 16

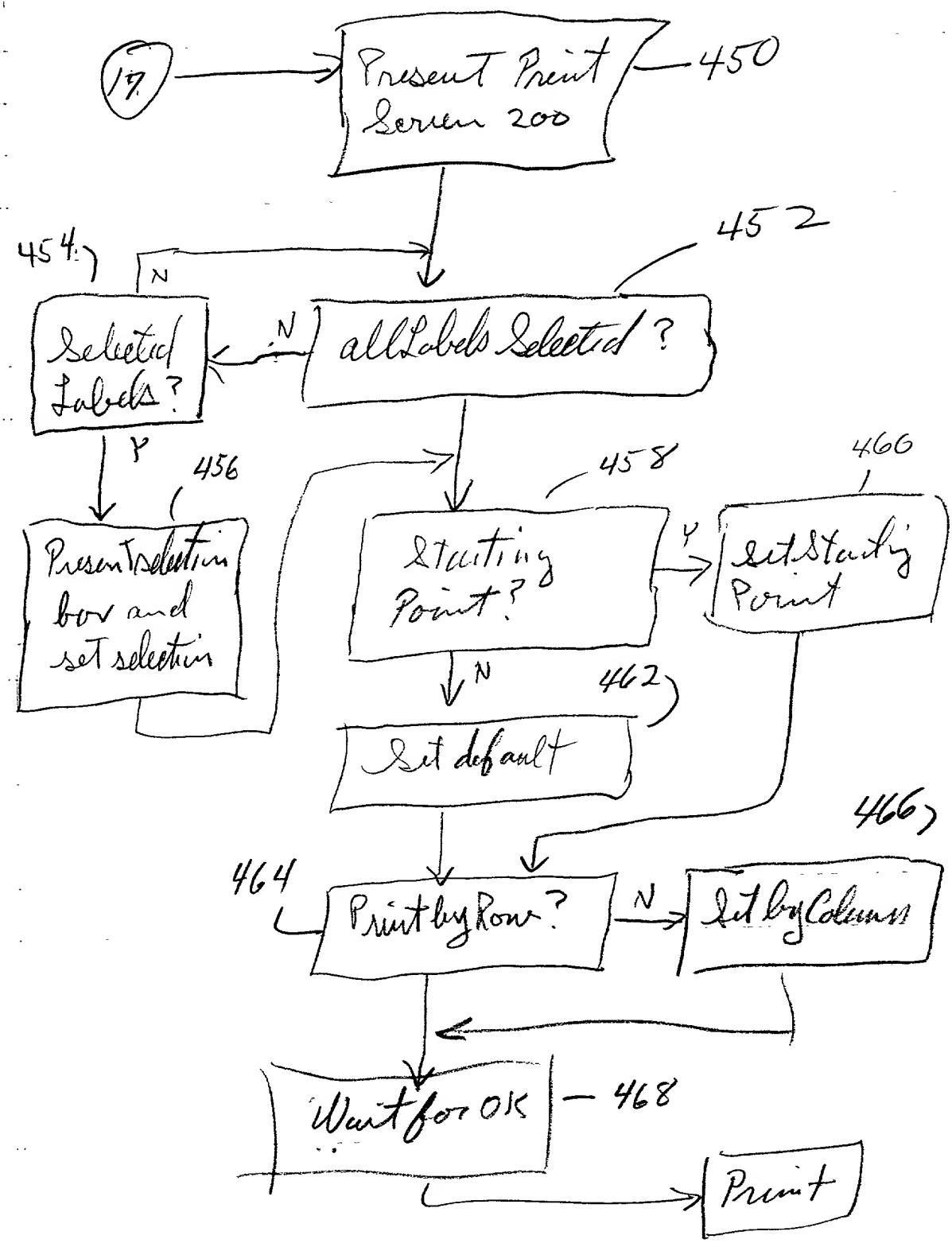
17
Present Print Screen 200
450
452
454
N
Selected Labels?
N
all Labels Selected?
Y
456
Present selection box and set selection
458
Starting Point?
Y
Set Starting Point
466
N
462
Set default
466
464
Print by Row?
N
Set by Column
Wait for OK
468
Print

FIG. 17.

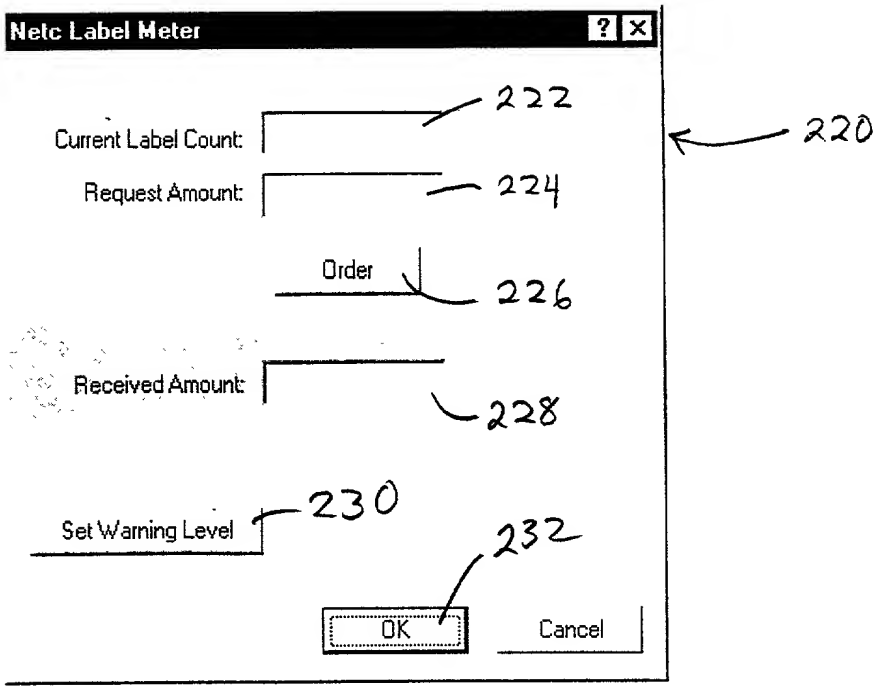
Netc Label Meter
Current Label Count:
Request Amount:
Order
Received Amount:
Set Warning Level
OK
Cancel
222
220
224
226
228
230
232

FIG. 18

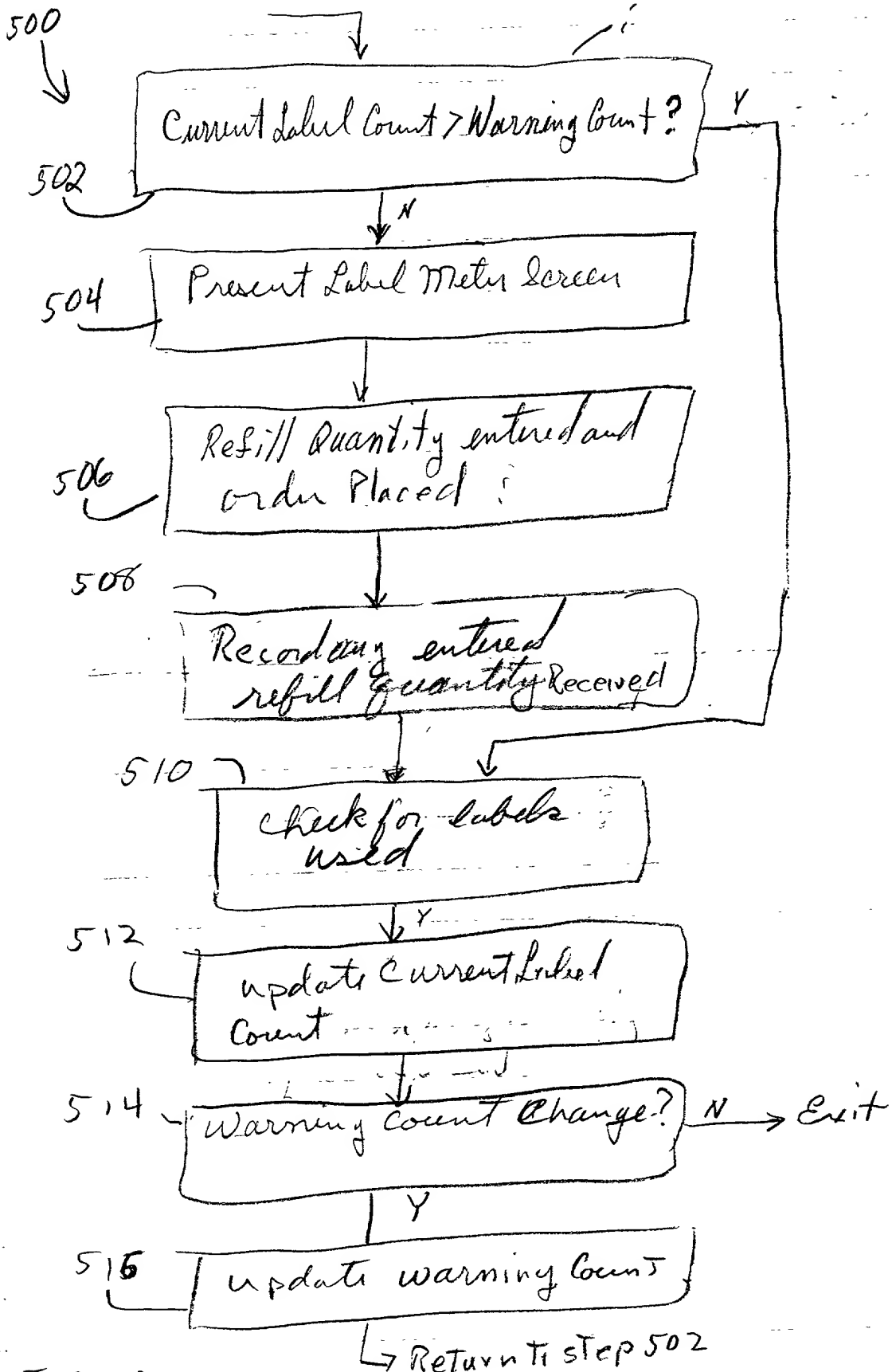
500
Current Label Count > Warning Count?
Y
502
N
Present Label Meter Screen
504
Refill Quantity entered and order Placed ?
506
Record any entered refill Quantity Received
508
510
check for labels used
Y
512
update Current Label Count
514
Warning Count Change?
N → Exit
Y
516
update warning Count
Return to step 502

FIG. 19

United States Patent & Trademark Office

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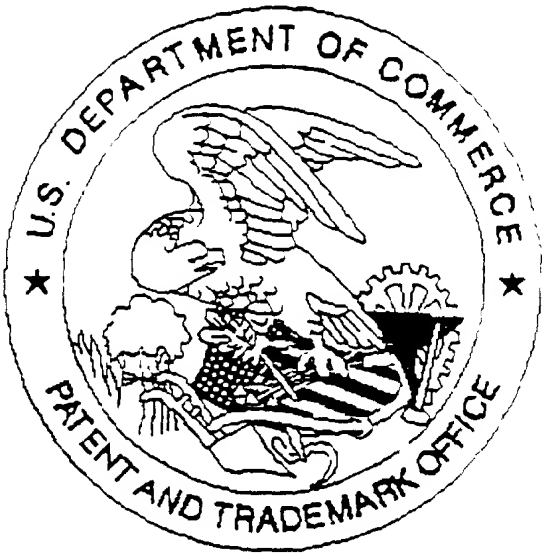

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☐ Page(s)_____ of _____ were not present for scanning. (Document title)

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